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# <Reports 5> A Review of Studies Seeking Evidence-Based Mother-Friendly Care for Preventing Postpartum Depression

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## A Review of Studies Seeking Evidence-Based Mother-Friendly Care for Preventing Postpartum Depression

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### INTRODUCTION

Childbirth can be both a difficult as well as joyful time for a new family. Although women are physically and mentally tired from childbirth, becoming a mother inevitably forces them to transition to parenthood, a role that in most cases is totally unfamiliar<sup>1,2)</sup>. Women jump into an unknown world and become unknown selves from the moment they give birth to a baby<sup>3)</sup>. Childbirth is a transformative experience, and the burden of physical, psychological and social changes in the perinatal period leave women vulnerable and easily exposed to psychiatric morbidity.

Kendell et al<sup>4)</sup> reported that among primipara women, the risk of psychiatric dysfunction is 35 times greater during the first month of motherhood than during any other life period. Cox et al<sup>5)</sup> also reported that during the first three months of motherhood, the incidence of postpartum depression without delusion and hallucination is two to three times higher than in other life periods. Current research reports that 10% of all pregnant women experience some type of depression during pregnancy. Furthermore, 25–40% of women experience a depressed mood during pregnancy, and approximately 15–20% of all women experience postpartum depression<sup>6–9)</sup>. The prevalence of perinatal depression significantly demonstrates that women are highly vulnerable, physically and psychologically, during childbearing.

Postpartum depression (PPD) is a major mental dysfunction, and it is severe. Many studies have been conducted to determine the causes of PPD. There are numerous etiological factors associated with PPD, including those that are cultural, social, psychological, and biological. Recent life stresses, marital problems, a lack of support, and financial challenges are known to be associated with causing episodes of PPD<sup>10–13)</sup>.

Childbirth is the first step in establishing a family for a couple, and mothers are typically expected to be the nucleus

of the family unit. PPD thus poses a problem not only for mothers, but also for other members of the family unit. The partners of wives with PPD experienced fear, and confusion, even after their spouses overcame PPD<sup>14)</sup>. They tended to be uncertain of the future having seen their wives become very different from the persons they had previously known. Partners were more likely to have psychiatric morbidity if their wives also screened positively<sup>15)</sup>. However, it is not known how often separation or divorce occurs as a result of PPD.

Children of mothers with PPD suffer physical and mental development delays, such as higher rates of depression, attention deficit, behavior problems, anxiety, poor social skills and peer relations, insecure attachment, and academic difficulties<sup>16)</sup>. Even worse, severe PPD can lead a mother to infanticide as well as maternal death, often by suicide<sup>17)</sup>.

The public has gradually become aware of PPD through the media and childbirth preparation classes. However, expectant parents usually focus on their childbirth, and not their postpartum. The detection of PPD is often further delayed because childbearing mother is usually alone at home and isolated from society. Furthermore, the partner is often unaware of the symptoms of PPD in the present nuclear family, and even when they are aware of unusual behavior, they tend to deny PPD and not to seek treatment and support<sup>14,18)</sup>. Many mothers also do not go to the doctor and others refuse to take medicine out of fear of addiction or the effects on breastfeeding<sup>19)</sup>. Finally, it is difficult for medical staff to distinguish PPD from anxiety resulting from childbearing.

At present, what are the most effective interventions for women with PPD? Storytelling and continuous care have been addressed as the most ideal forms of postpartum care for helping women smoothly transit to motherhood<sup>20,21)</sup>. It is important for health care providers to know updated evidence-based maternity cares for the prevention of PPD. The objective of this study is to critically review the literature, to investigate updated effective interventions concerning the prevention of PPD, and to consider women-centered services such as mother friendly care.

## METHODS

A literature search was performed using Kyoto University library online database. PubMed database is searched from June 2004 to May 2009 using combinations of the terms “postpartum depression”, “prevention”, “intervention”, and “randomized controlled trial”. The research articles selected had to meet the following inclusion criteria: 1) focus on primary prevention of PPD using specific intervention, 2) implement randomized controlled trial, 3) use the Edinburgh Postnatal Depression Scale (EPDS) or others to measure mental status, 4) provide statistical analysis of the study results, and 5) English-language articles. Literature reviews, meta-analyses, and case studies were excluded.

The initial search yielded 36 abstracts that appeared to meet the key words for the past five years, June 2004 to May 2009. Upon closer review, of these 36 studies, nine were excluded because they were not in accordance with the objective of this study<sup>22-30</sup>, seven were excluded because they reported the systematic review of literatures<sup>31-37</sup>, three were excluded because they reported effects of pharmacological treatment<sup>38-40</sup>, two were excluded because they were case study and pilot study<sup>41,42</sup>, five were excluded because the results were of no significant difference<sup>43-48</sup>, three were excluded as the statistical power was low because the sample size was too small<sup>49-51</sup>, and two were excluded because they were specifically dealt with mothers with infants who were admitted to NICU<sup>52,53</sup>. Out of 36 studies, there were four studies which focused on

**Table 1** Characteristics of included studies

Study	Location	Study type/ dates	N	Sample description	Intervention condition	Times & period	Intervention provider	Control condition
Dip Teach & Edwards 2004	Australia	Treatment	19 (9, 10)	The Gold Coast region, EPDS $\geq 12$	Pram-walking: Approximately 40 min walking session twice a week	Twice a week for 12 weeks	A child health social worker	Social support group: meeting with their babies at the local community center once a week, free talking
Tezel & Gozum 2005	Turkey	Treatment Feb.-Nov. 2002	62 (30, 32)	Urban community sample, EPDS $\geq 11$ at high risk without exhibiting major symptoms and also pharmacological treatment	Care group: home visiting, using a symptom check list and providing nursing intervention using NANDA, NOC, and NIC.	Weekly for 6 weeks	Research nurses	Teaching self problem solving skills sessions weekly
Van Doesum, et al 2008	Netherlands	Treatment	71 (35, 36), Mother-infant pair, BDI > 14, Infants > 12 months	A major depressive episode and BDI > 14 with exception of psychotic disorder, manic depression, and substance dependence	Experimental group: home visiting, taking videos of mother-infant interaction, video feedback and baby massage.	8-10 times for 3-4 months	Home visitors (qualified prevention specialists)	Parenting support by telephone.
Dennis, et al 2009	Canada	Treatment Nov. 2004-Sep. 2006	701 (349, 352), EPDS > 9	EPD > 9 predicting postpartum depression	Proactive individualized telephone call services.	> four contacts until 12 weeks post partum	Mothers (peer supporters) who were experienced PPD	Routine care.

**Table 2** Timing of outcome assessment, statistical analysis, and results of included studies

Study	Timing of outcome assessment	Statistical analysis	Results
Dip Teach & Edwards 2004	Pretest/week 1, week 6, week 12 EPDS	Effective in both interventions	The result of EPDS revealed a significant main effect for time ( $p < 0.001$ ) and interaction of time and group ( $p < 0.02$ ), but no effect for group ( $P > 0.05$ ). The pram-walking group pre-depression score decreased significantly by week 6 ( $p < 0.001$ ), week 12 ( $P < 0.05$ ).
Tezel & Gozum 2005	Pre, and post (6 weeks): The Beck Depression Inventory (BDI)	Effective in both interventions	Nursing care was effective ( $p < 0.001$ ). Control group ( $p < 0.05$ ). Nursing care was more effective than the control group in BDI ( $p < 0.05$ ).
Van Doesum, et al 2008	Pre, post and follow-up after 6 months BDI, MINI Quality of the mother-infant interaction: EAS, AQC, ITSEA	Effective in both interventions	The score of BDI decreased in both groups ( $p < 0.01$ ). The intervention had positive effects on the quality of mother-infant interaction. Infants in the experimental group had a higher score for attachment security and competence.
Dennis, et al 2009	12, 24 weeks EPDS Structured clinical interview-depression, state-trait anxiety inventory, UCLA loneliness scale	Significant Difference at 12 weeks	EPDS $p < 0.001$ at 12 weeks. No significant difference at 24 weeks. Over 80% of women in the intervention group were satisfied.

effective methods of intervention supported by evidence-based practices meeting criteria for preventing PPD<sup>54-57</sup>.

## RESULTS

Table 1 displays author & year, implemented country, sample size, intervention condition, times & period, intervention provider, and control condition for each of the four articles reviewed. Table 2 also displays timing of outcome assessment, statistical analysis, and results. Well-controlled interventions verified by this literature review were used to treat PPD with low and mild symptoms. There was no well-controlled intervention to prevent PPD during pregnancy in the literature review. The measures used to assess depression level were Edinburgh Postnatal Depression Scale (EPDS), the Beck Depression Inventory (BDI), Mini International Neuropsychiatric Interview (MINI), and so on. Three studies used women with PPD who had EPDS >9,  $\geq 11$ , and 12 without major symptoms<sup>54,55,57</sup>. Another study used women with the BDI >14, with exception of pharmacological treatment<sup>56</sup>.

The types of interventions differed in each study: the pram-walking exercise program vs. social support program, home visiting vs. self problem skills sessions, home visiting vs. telephone call services, and telephone services added to routine care vs. routine care. The intervention providers included child health social workers, research nurses, qualified master level specialists, and mothers who previously experienced PPD and recovered. With each study, the period of the intervention varied, ranging from 6 weeks to 4 months. The frequency of the intervention was also from twice a week to monthly, depending on the period of the program. The timing of outcome assessment was from one week after intervention to the middle and the end of the intervention. Of four well-controlled trial studies, three studies showed that the good outcomes of PPD had both the intervention groups and the control groups, even though the intervention groups were more effective than the control groups<sup>54-56</sup>.

The first study was the pram-walking exercise program vs. social support program<sup>54</sup>. There was only one study that physical exercise was added to the program. The participants were women who showed EPDS  $\geq 12$  without major symptoms. They attended the pram-walking session twice a week under the guidance of child health social workers. Women walked for approximately 40 min with moderate intensity on flat walking paths, the Gold Coast, Australia. On the other hand, the control group held their meeting at the local community center once a week. At that time, women brought their babies and had free talking

time. The EPDS of both groups decreased from the pretest score to week 6, and week 12. The score of pram-walking group, however, decreased the more significantly of the two, dropping by week 6 ( $p < 0.001$ ) and, week 12 ( $p < 0.05$ ).

The second study was home visiting services vs. self problem solving skills sessions set in Turkey<sup>55</sup>, they provided tailored flexible nursing care to individual on a weekly basis. Based on the symptom check list at the first home visit, they made a care plan for each woman according to the North American Nursing Diagnosis (NANDA), implemented nursing care according to the Nursing Intervention Classification (NIC), and assessed their cares with the Nursing Outcomes classification (NOC). The control group provided the self problem solving skills in the same period by the nurse researcher. Both interventions effectively decreased the BDI score, but nursing care showed better results than the control ( $p < 0.05$ ).

The third study evaluated effective home visiting intervention vs. telephone call services set in the Netherlands<sup>56</sup>, this study focused on mother-infant relationships, and the implementation of home visiting over a 3 to 4-month period. They took video footage of mother-infant interaction during every home visit and then showed the video back to the mother and other family members, encouraging the mothers to point out their behaviors and responses to their babies' eye movements, body movements, or voice. Baby massaging techniques were also introduced to the mothers to order to improve the quality of physical contact between mother and infant. The control group received practical parenting advice from child therapists over three telephone calls over a period of three months. Each lasted a maximum of 15 minutes. The level of depression decreased over time for both the intervention group and control group ( $p < 0.01$ ). The home visiting intervention had positive effects on the quality of mother-infant interaction.

The final study, set in Canada, focused on intervention through telephone calls services that were added to the routine service for PPD women by peer supporters who previously experienced PPD<sup>57</sup>. They made a minimum of four contacts, and then provided effective telephone based services and made referrals to health professionals as necessary. At 12 weeks, the outcome showed notable difference ( $p < 0.001$ ), but these differences were no longer significant at 24 weeks. However, over 80% of women in the intervention group were satisfied with the peer telephone calls services.

## DISCUSSION

On the well-controlled clinical trial studies, three effective interventions were revealed: pram-walking exercise program, two kinds of home visiting interventions (using video, and nursing care process), and telephone call services by peer supporters. An effective intervention to prevent PPD during pregnancy was not found in this literature review. All effective interventions were implemented to women with minor symptoms of PPD, with the exception of pharmacological treatment,  $EPDS > 9$  and  $BDI > 14$ . The EPDS and the BDI are commonly used measures to assess postpartum depression level. The EPDS is a 10-item, self-report questionnaire which is user-friendly, simple, and can be filled out by women in a short time. A score of  $EPDS \geq 12$  is an indicator that a woman suffers from PPD. However, they said that a cutoff point of 9/10 was optimal for use in research setting<sup>5)</sup>. The BDI cutoff score is as follows: a score  $< 10$  signifies no or minimal depression, 10–18 mild to moderate depression, and 19–29 moderate to severe depression<sup>58)</sup>. These interventions showed significant difference in their ability to decrease the symptoms of PPD. All the above well-controlled trial studies involved different methods of intervention, period and frequency, providers, sample sizes and location. The medical intervention has primarily focused on sick mothers. However, it must also provide comprehensive women-centered or mother friendly care that focuses on mother-infant relationship involving the family members. Out of the four studies, three provided interventions focused on mother-infant interaction which involved husbands<sup>54–56)</sup>. Out of the four studies, two focused on mother-infant interaction and improving mother-infant and woman-husband relationships through home visiting intervention<sup>55,56)</sup>. Their effective interventions were an elaborate service that involved the recording of mother-infant interaction at the home, and using the footage to coach and encourage the mother and her family. This is a new method using visual and audio to address the challenges of PPD<sup>56)</sup>. Another intervention was a systematic intervention tailored to meet the individual needs of the postpartum mother and family using a nursing process based on NANDA, NIC, and NOC<sup>55)</sup>. The pram-walking exercise program was the only one method of intervention to involve maternal physical exercise. It is widely accepted that physical exercise refreshes the mind and body. This study noted that only 16–42% of childbearing women engaged in a sufficient amount of physical activity to maintain health. For childbearing

women, pram-walking was the most popular activity in Australia<sup>54)</sup>. Field<sup>59)</sup> suggested that it was important for health providers to tailor their coaching to the mother's interaction style, to promote frequency of touching (e.g., by baby massage), and to encourage the partner or other family members to offer the mother more social support. These effective interventions based on well-controlled trials were implemented in Australia, Turkey, Netherlands, and Canada. Postpartum healthcare systems differ in each country. The current major health policy is to provide high quality care based on evidence-based practice, cost effectiveness, and accessibility. Based on the above, significant conclusions can be drawn regarding feasible interventions for new mothers and their families under current healthcare policies in each country.

One of the aims of this study is to consider women-centered services such as maternal mother friendly care. Postpartum depression occurs between a few weeks to a few months after childbirth. The peak onset was reported at the end of the first month after childbirth<sup>17)</sup>. In each country after discharged from the hospital, mothers return to an Ob/Gyn for a four-week checkup. At that time, health care providers should take time to discuss PPD with new mothers and her husband or her mother, and assess the level of postpartum depression with a questionnaire of EPDS or BDI. The four-week checkup after childbirth is a good time to screen for PPD. If new mothers show a high score of each measure, health care providers have to provide mother friendly care tailored to each woman's family based on effective interventions, and also refer them to a specialist. As many women hesitate to take medicine for reason of breastfeeding or out of fear of addiction, health care providers need to provide proper information and consider feasible mother friendly care methods with new mothers and their families.

## CONCLUSION

In the well-controlled clinical trial studies, three effective interventions were revealed: pram-walking exercise program, two kinds of home visiting intervention, and telephone call services by peer supporters. A four-week checkup is a good chance to screen for PPD, using an EPDS or BDI questionnaire. Using healthcare policies in each country, health care providers need to offer postnatal services for the prevention of PPD such as revealed in this study.

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